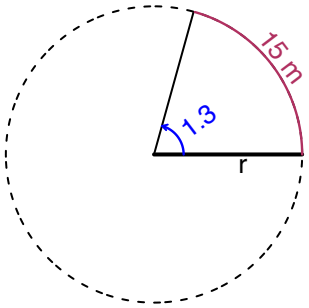
Name: Date:

Trig Final (Practice v0)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

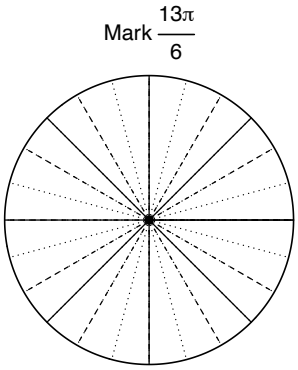
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.3 radians. The arc length is 15 meters. How long is the radius in meters?

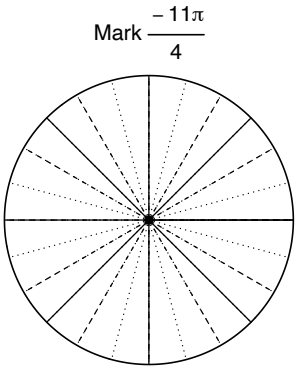


Question 2

Consider angles $\frac{13\pi}{6}$ and $\frac{-11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{13\pi}{6}\right)$ and $\cos\left(\frac{-11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(13\pi/6)$



Find $\cos(-11\pi/4)$

Question 3

If $\cos(\theta) = \frac{39}{89}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -4.5$ meters, a frequency of 7.6 Hz, and an amplitude of 2.59 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

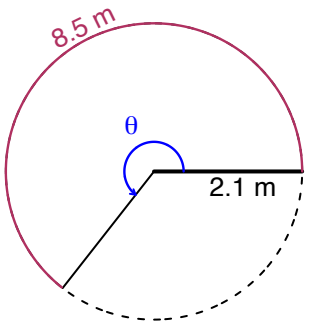
Name: Date:

Trig Final (Practice v1)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

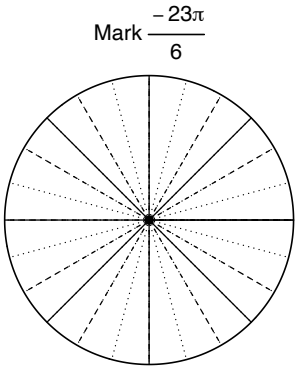
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 2.1 meters. The arc length is 8.5 meters. What is the angle measure in radians?

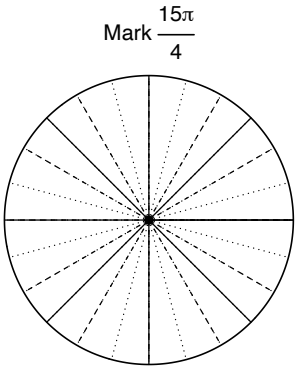


Question 2

Consider angles $\frac{-23\pi}{6}$ and $\frac{15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-23\pi}{6}\right)$ and $\sin\left(\frac{15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-23\pi/6)$



Find $\sin(15\pi/4)$

Question 3

If $\sin(\theta) = \frac{-55}{73}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -2.34$ meters, a frequency of 7.08 Hz, and an amplitude of 5.52 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

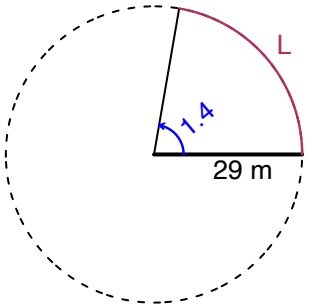
Name: Date:

Trig Final (Practice v7)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

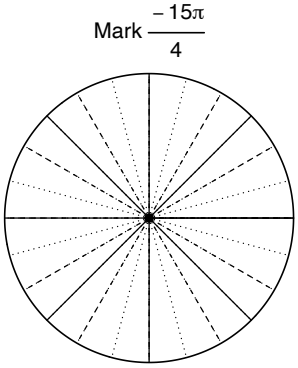
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 29 meters. The angle measure is 1.4 radians. How long is the arc in meters?

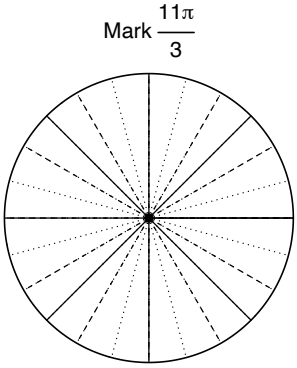


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-15\pi}{4}\right)$ and $\cos\left(\frac{11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-15\pi/4)$



Find $\cos(11\pi/3)$

Question 3

If $\tan(\theta) = \frac{-55}{48}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 3.02 meters, a frequency of 5.58 Hz, and a midline at $y = -6.87$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).